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WRITTEN LANGUAGE DEVELOPMENT OF INTERMEDIATE GRADE CHILDREN.

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*WRITING SKILLS, *COMPOSITION (LITERARY), LANGUAGE ARTS, *INTERMEDIATE GRADES, ELEMENTARY SCHOOL STUDENTS, *CHILD DEVELOPMENT, *STUDENT CHARACTERISTICS, SEX DIFFERENCES, AGE DIFFERENCES, *INSTRUCTIONAL PROGRAM DIVISIONS, GEOGRAPHIC LOCATION, RURAL-URBAN DIFFERENCES, PITTSBURGH, PENNSYLVANIA

SELECTED ASPECTS OF COMPOSITIONS, WRITTEN BY INTERMEDIATE GRADE CHILDREN (FOURTH, FIFTH, AND SIXTH GRADES), WERE STUDIED TO REVEAL GROWTH GRADIENTS OF WRITTEN LANGUAGE BY THE FOLLOWING CHARACTERISTICS (1) SEX, (2) CHRONOLOGICAL AGE, (3) GRADE LEVEL, (4) GEOGRAPHICAL LOCATION, AND (5) RESIDENCE AREA. THE SUBJECTS WERE 14,400 CHILDREN IN FOUR GEOGRAPHIC REGIONS OF THE UNITED STATES. EACH REGION WAS REPRESENTED BY FOUR METROPOLITAN AREAS, FURTHER DIVIDED INTO RURAL, SUBURBAN, AND URBAN RESIDENCE CLASSIFICATIONS. THE COMPOSITIONS SUBMITTED BY THE STUDENT SAMPLE WERE ANALYZED IN TERMS OF PARTS OF SPEECH, SENTENCE TYPE, SENTENCE COMPLEXITY, CLAUSES, AND PHRASES. PHRASES WERE DIVIDED INTO FIVE CATEGORIES (NOUN, VERB, ADJECTIVAL, ADVERBIAL, AND ABSOLUTE). THE INCIDENCE OF USE OF SENTENCE FRAGMENTS AND RUN-ON SENTENCES AND THE FREQUENCY OF THE USE OF RIGHT OR LEFT HAND IN WRITING WERE TABULATED. STUDY RESULTS SHOWED THAT RESIDENCE CLASSIFICATION, SEX, INCIDENCE OF RIGHT OR LEFT HANDEDNESS, INCIDENCE OF USE OF RUN-ON SENTENCES, AND INCIDENCE OF USE OF SENTENCE FRAGMENTS PRODUCED NO SIGNIFICANT CORRELATIONS WITH ANY OTHER VARIABLES. THUS, NO IMPORTANT RELATIONSHIPS FOR THOSE VARIABLES EXISTED IN THIS PARTICULAR SAMPLE. GRADE LEVEL AND AGE, HOWEVER, PROVED TO BE HIGHLY RELATED TO EACH OTHER IN ANALYSIS OF THE WRITTEN COMPOSITIONS, PRODUCING A CORRELATION OF .824. (JH)

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WRITTEN LANGUAGE DEVELOPMENT OF INTERMEDIATE GRADE CHILDREN

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INTRODUCTION

The purpose of the study is to analyze selected aspects of written compositions of intermediate grade children (grades 4, 5, and 6) to reveal characteristic growth gradients by sex, chronological age, grade level, the four geographic regions of the United States, and type of residence area (urban, suburban, and rural).

Pilot studies were carried out to determine the procedures for receiving an immediate writing response from intermediate grade children; to improve techniques for the collection of data; and, to investigate the feasibility of conducting the study on a large scale.

The subjects were 14,400 intermediate grade pupils in four geographic regions of the United States. Each geographic region was represented by four metropolitan areas, further divided into urban, suburban, and rural residence classifications.

The pupils' compositions were analyzed in terms of parts of speech, sentence type, sentence complexity, clauses, and phrases. Grade placement, age, sex, residence classification and region were designated as main effects for analysis. Phrases were divided into five categories (noun, verb, adjectival, adverbial, absolute). The incidence of use of sentence fragments

and run-on sentences was tabulated. The frequency of the use of right or left hand in writing was tabulated also.

These hypotheses were formulated:

1. Geographic region will have no effect on the development of the written language of intermediate grade children. This is because of the widespread influence of the mass media (especially television), the similarity and mass distribution of textbooks, the mobility of the population, and the relatively similar nature of the education of teachers. All contribute to the major eradication of former geographic parochialism.
2. Residence classification (urban, suburban, rural) will have no effect for the same reasons given for geographic distribution.
3. Grade level and age will have a significant effect on many of the selected aspects of language development.
4. The sex of the subjects will have a significant effect on the total number of

sentences, length of sentences, and the use of some parts of speech.

5. The use of the left or right hand in writing will have a significant correlation with the selected aspects of written language.

Definitions of terms

Since many of the terms peculiar to the study have their meaning influenced by the nature of the study, it was necessary that their definitions be in terms of operation rather than adhere strictly to dictionary meanings.

1. Geographic region — One of the four areas into which the country was divided for the purpose of providing stratified samples. Those divisions were West, Northeast, South, North Central.

2. Residence classification
   a. Rural — An area which was open country or a village or a town of fewer than 2,500 population and where land use was principally devoted to farm operations.

b. Suburban	A village, town, township, or borough which lies on the fringe of a large urban area; has a population of over 2,500, and is politically independent of the larger urban area, but economically dependent upon it for the employment of a majority of its residents.
c. Urban	A city with a population of 75,000 or more.
3. Metropolitan area	A geographic area which includes a large central city (urban residence) suburbs (suburban residence) and the immediate fringe area (urual residence) and whose residents are affected by the general socio-economic conditions of the central city.
4. Intermediate grade	One of those elementary grades between the primary level and junior high school level: grades 4, 5, and 6.
5. Specimen	The written composition as collected from each subject.
6. Sample sentences	Sentences randomly selected from the specimen for analysis.

7. School "set" — Refers to all subjects within a metropolitan area including boys and girls in grades 4, 5, and 6, in urban, suburban, and rural elementary schools.

METHODS AND PROCEDURES

A. General Method

This study was descriptive in nature and employed a stratified random sampling procedure in gathering written compositions for the purpose of determining the continuum in growth and development which occurs in the written language of intermediate grade children.

B. Procedure

1. Population sample

Specimens of the written composition of boys and girls in grades 4, 5, and 6, were gathered from elementary schools in sixteen metropolitan areas in four geographic regions of the United States (West, Northeast, South, North Central). A total of over 600 classrooms in 54 school districts were visted.

Three types of residence classification (urban, suburban, rural) constituted each school "set." This procedure was used to provide data which were typical of that geographic area and yet uniformly influenced by the socio-economic factors of that

metropolitan area. Four school "sets" were selected from each of the four geographic areas in order to secure a sample fairly typical of the entire region.

At least 100 specimens were gathered from each grade level in each residence classification of a metropolitan area. An example of the sampling procedure used is:

Urban schools: One hundred (100) specimen (50 boys and 50 girls) from each of the intermediate grades (4, 5, and 6). Total of 300 specimens.

Suburban schools and rural schools were sampled in the same manner, with a total of 300 specimens obtained from each.

Since only intact class groups were used and since class size varied, it was necessary at times to combine two or more suburban districts or two or more rural districts to obtain the 100 specimens needed from each grade level from each residence classification within each school "set." From the sixteen cities in the four geographic regions of the United States a total of over 14,400 specimens were collected. The list of metropolitan areas used is shown below. Each represents a "set" and produced a total of 900 specimens.

West	North Central
Denver, Colorado	Cincinnati, Ohio
Sacramento, California	Kansas City, Missouri
San Diego, California	St. Paul, Minnesota
Seattle, Washington	Springfield, Illinois

South	Northeast
Baton Rouge, Louisiana	Albany, New York
Chattanooga, Tennessee	Allentown, Pennsylvania
Dallas, Texas	Bridgeport, Connecticut
Jacksonville, Florida	Springfield, Massachusetts

Administrators of school districts in the selected metropolitan areas were contacted by mail or telephone for their consent. The purpose of the study and the procedure for gathering the data was explained. Specific instructions were given regarding the selection of classes, the number of subjects needed, and the lack of any need for the preparation of the pupils before data was to be collected.

The entire process of collecting specimen from the time the researcher entered a classroom and the writing specimens were collected required approximately forty minutes; very little time and effort were required on the part of the teacher or administrator and in most cases this effort was expended in explaining how the data would be collected, and in arranging the class schedule for the researcher.

All students present in a particular classroom on the day of the researcher's visit participated in the study. Certain subjects' papers were not used for the following reasons:

(1) Illegibility.

(2) Marked auditory handicaps.

Subjects with marked auditory handicaps or deficiencies which precluded their hearing the instructions and motivation presented on tape were provided with a typed copy from which to work. Subsequently their papers were removed from the data collected and analyzed.

(3) Excessive number of specimens.

Since only intact class groups were used in collecting the data, the total number of specimens occasionally exceeded the number needed. In this event the appropriate number were selected at random and the remainder were excluded.

2. Procedure for collecting the data

Two pilot studies were conducted. One to determine the most effective procedure for receiving an immediate writing response and a second to modify and refine research procedures.

In order to insure relative uniformity in the gathering of data in all the selected school districts, the instructions, explanations, and motivational devices for stimulating the

writing activity were pre-recorded on tape. A standard sheet for writing the specimen was provided for each subject. Standardized verbal instructions were used by the researchers to obtain pupil identification data, to give purpose for the writing exercise, and to stimulate the class for the writing activity.

At the specified time the researcher entered the classroom. A total of fifteen minutes was required to give each pupil a specimen sheet, record biographical data, and play the tape. The children then wrote for twenty-five minutes. At the end of this period the writing specimens were collected.

3. Data

The primary sources of the data were the written compositions from the 14,400 subjects. (N=14,399) These specimens contained information identifying each subject by grade, sex, age, residence classification, geographic region, plus the actual composition.

a. Grouping of specimen.

Fifty papers of each category (e.g., Fourth grade urban boys West) from each of the four cities of a geographic region were combined (area total = 200) making a total of 72 groups of papers. These specimens were all numbered according to a prescribed method to make identification possible.

b. Sentence count.

All specimens were read, marked, and tallied in the following manner:

(1) Each complete sentence was separated by a vertical blue line.

(2) Run-on sentences were separated where appropriate and marked as two or more sentences. If either the end punctuation or capitalization for the beginning of the next sentence was present, it was not considered a run-on sentence. The presence of a run-on sentence was indicated on the specimen.

(3) Sentence fragments were set off by brackets. The presence of a fragment was marked on the specimen.

(4) The total number of complete sentences (TNS) in each specimen was tallied and written on each specimen.

(5) A cumulative total of the number of complete sentences of an entire group (200 specimens) was made.

(6) The incidence of papers with run-on and sentence fragments was tabulated.

(7) The number of children writing with the right or left hand was recorded.

c. Sample sentences.

Six hundred (600) sentences were randomly selected from each group of 200 specimens. This was accomplished by dividing the cumulative total of sentences by 600, randomly selecting the first sample sentence from one of the digits from 1 - n (result of $\frac{x}{600}$) and selecting each $\frac{x}{600}$th sentence from there on.

If a specimen did not contain a sufficient number of sentences, one was arbitrarily selected and the sentence count continued so each specimen would be represented. The sample sentences were put in parenthesis with a red pencil and numbered from 1 to 600. The 600 sample sentences were then typed exactly as they appeared on the specimen and reproduced to provide multiple copies for the actual analysis of sentences.

d. Analysis of sample sentences.

Each group (N = 200) of specimen comprising one cell of the analysis of variance and composed of 600 sample sentences was analyzed in terms of:

(1) eight parts of speech:
nouns, verbs, adverbs, adjectives, pronouns, prepositions, conjunctions, interjections.

(2) four sentence types:
declarative, imperative, exclamatory, interrogative

(3) four types of sentence complexity:
simple, compound, complex, compound-complex

(4) two kinds of clauses:
dependent, independent

(5) five types of phrases:
noun, verb, adverbial, adjectival, absolute

e. Tabulation.

The data plus residence classification, grade level, sex, age, right or left hand, total number of sentences per specimen, and the incidence among subjects of run-on sentences and sentence fragments were collected and tallied.

f. Variables.

The thirty-three (33) variables with a brief description of each and the coding system used are as follows:

(1) Residence classification:
Code: Suburban - 0;
Urban - 1
Rural - 2

(2) Grade level:
Code: 4; 5; 6.

(3) Sex:
Code: Boy - 0; Girl - 1.

(4) Age:
Computed in months from "Date of Birth" and "Date" information on specimen sheets. If the date of birth was missing, the age in months was computed by multiplying the age given in years by 12. Subjects were divided into six age groups.

(5) Right or left hand.
A capital "L" or "R" was circled on the specimen to indicate the hand he used to write the composition.
Code: Right - 0; Left - 1.

(6) Run-on sentences.
This marking indicated whether or not a pupil used run-on sentences in the composition, not the frequency of use by the subject.
Code: Yes - 1; No - 0

(7) Sentence fragments
This marking indicated whether or not a pupil used sentence fragments in the composition, not the frequency of use by the subject.
Code: Yes - 1; No - 0.

(8) Total number of sentences
The total number of sentences in a specimen was recorded in arabic numbers.

(9) Total number of sample sentences
The total number of sentences which were selected randomly from a specimen and used for analysis.

(10) Total number of words in sample sentences.
The total number of words in sample sentences for each pupil were recorded.

(11-18) Parts of speech.
The total number of each of the parts of speech contained in sample sentences.

(19-22) Sentence type.
Categorizes the sample sentences as to the four types according to complexity.

(23-26) Sentence type.
Categorizes the sample sentences as to four types: declarative, imperative, interrogative, exclamatory.

(27-28) Clauses.
A count of dependent and independent clauses from all sample sentences classified as complex, compound, or compound-complex.

(29-33) Phrases.
A count of a classification of phrases found in sample sentences as noun, verb, adverbial, adjectival, or absolute.

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C. Analysis

The principal methods of analysis included correlational analysis of the thirty-three variables and analyses of variance of the criterion variables. The computations were done on the IBM 7070 of the University of Pittsburgh Computation and Data Processing Center[1] using programs developed by Lotto and Ivan.[2]

These analyses were undertaken in the following manner:

1. Correlational analysis of the thirty-three variables as calculated using the CORR 2 program developed by Lotto. This produced an intercorrelational matrix showing the interrelationships among the variables and also means and standard deviations for each variable for the total sample (N = 14,399).[3]

2. Analysis of variance.

   a. The data cards were rearranged into the 72 independent categories (N = 200). The independent variable categories involved three grade levels, two sexes, three residence classifications, and four geographic regions. A 3 x 2 x 3 x 4 (grade x sex x residence classification x geographic region) analysis of variance (Ivan) was performed on each criterion variable with N = 200 cell to identify

[1] The analyses for this study were obtained from the Computation and Data Processing Center of the University of Pittsburgh, provided through the support of the National Science Foundation, Grant No. E-11309.

[2] Written for this study.

[3] Routine by-passed for one subject, thus reducing N from 14,400 to 14,399 for the correlational matrix.

developmental patterns in written composition in terms of grade, sex, residence classification, and geographic region. This analysis produced information concerning the main effects of grade, sex, residence classification, and geographic region.

b. To produce the second four-way analysis of variance (substituting age for grade) the data cards were sorted into six age groups. They are as follows:

Group	Months	Equivalent Age in Years
1	114-119	9½
2	120-125	10
3	126-131	10½
4	132-137	11
5	138-143	11½
6	144-149	12

These were chosen to provide meaningful groups for discussion roughly equivalent to the ages of children expected to be found in grades four, five, and six; and to use as many subjects as possible. These groupings resulted in N=45 for each cell. The subjects under 114 months and over 149 months were excluded as they are atypical of those children usually found in these grades.

This analysis was performed to identify developmental patterns in written composition in terms of age, sex, residence classification, and geographic region. This analysis resulted in information of the same character as the first analysis of variance with age instead of grade as a main effect and in subsequent interactions.

FINDINGS

The statistical results reported in this study are based upon the findings from the analysis of the composition specimens written by 14,400 intermediate grade children who attended public schools in sixteen selected metropolitan areas in the United States. Although every reasonable attempt to obtain a representative sampling of the pupils in these areas, it was necessary to arbitrarily select cities and school districts and to classify them as rural, suburban, and urban. The particular classrooms used were those selected by the administrators of their school districts in order to gain a cross section of the district's pupils. Thus, the sampling became one of approximation rather than randomness. As a result the inferences made from this study should be restricted to those which can be made with these limitations considered.

A. Correlational Matrix

Most significant correlations were positive, indicating an increase in one variable concurrent with increase in the other. The few negative correlations indicate that as one variable increased, the other decreased. All correlations to be mentioned in the following are positive unless otherwise stated.

Residence classification, grade level, sex, geographic region and age were the independent variables designated as main effects for use in the analyses of variance. Variables 6 through 33 are the criterion variables. These correlations were obtained from data from the context of the written compositions.

Residence classification, sex, incidence of right or left handedness, incidence of use of run-on sentences and the incidence of use of sentence fragments produced no significant correlations with any other variables. Thus, no important relationships existed in this particular sample.

Grade level and age were highly related to each other with a correlation of .824.

Correlations significant at the one percent level existed among: total number of sentences, total number of sample sentences, and total number of words in sample sentences. These three variables also showed significant (1%) correlations with seven (except interjections) of the eight parts of speech, both dependent and independent clauses, and verb phrases. The total number of words in sample sentences correlated at the one percent (1%) level with complex sentences, compound-complex sentences and noun phrases.

All parts of speech (except interjections) had correlations significant at the one percent (1%) level with each other.

Nouns and verbs correlated significantly with simple sentences, complex sentences, compound sentences, compound-complex sentences, dependent and independent clauses, and noun and verb phrases.

Pronouns and conjunctions correlated significantly with complex sentences, compound sentences, compound-complex sentences, dependent and independent clauses, and verb phrases.

Correlations significant at the one percent level appeared between adjectives, adverbs, prepositions and conjunctions. In addition, adjectives and adverbs correlated significantly with simple and compound sentences, dependent and independent clauses, and verb phrases.

A significant correlation also existed between adverbs and compound-complex sentences.

Significant correlations existed with prepositions and adjectives, adverbs, conjunctions, simple sentences, dependent and independent clauses, and verb phrases.

The only significant correlations involving interjections was with exclamatory sentences.

None of the types of sentences correlated significantly with the others. Declarative sentences correlated significantly with the seven parts of speech (excluding interjections) simple and compound sentences, dependent and independent clauses, and verb phrases.

Interrogative and imperative sentences were not significantly correlated with any of the variables.

Exclamatory sentences showed only one significant correlation and that was with interjections.

Sentences classified as simple, complex, compound, and compound-complex produced negative correlations among themselves. However, only those correlations between simple and compound, and compound and complex were significant. Simple sentences also produced significant negative correlations at the one percent (1%) level with dependent and independent clauses.

All sentence types classified by complexity exhibited significant relationships with various parts of speech.

Simple and compound sentences showed significant correlations with total number of sentences, total number of sample sentences, and total number of words in sample sentences; complex and compound-complex only with total number of words

in sample sentences. Compound and compound-complex sentences correlated positively and significantly with clauses and verb phrases. Complex sentences produced significant positive correlations only with independent clauses.

Dependent and independent clauses correlated at the one percent level with each other, total number of sentences, total number of sample sentences, total number of words in sample sentences, seven of the eight parts of speech, declarative sentences, compound sentences, compound-complex sentences, and verb phrases. A significant positive correlation existed between independent clauses and complex sentences.

Dependent and independent clauses correlated significantly and negatively with simple sentences.

Of the five types of phrases selected for this study only verb phrases revealed many significant correlations. These correlations were with total number of words in sample sentences, seven of the eight parts of speech, compound sentences, compound-complex sentences, dependent clauses and independent clauses.

Noun phrases produced significant correlations only with total number of words in sample sentences, nouns, and verbs.

Adjectival, adverbial, and absolute phrases produced significant differences only with each other.

B. Results of Analysis of Variance for Criterion Variables

The results of the analysis of variance for the criterion variables by age and grade are included. The age and grade analyses will be separate.

Variable 5 Right or Left Hand

a. Analysis by grade.

The total number of children writing with either left or right hands was significant in terms of the main effects of sex, residence classification, and geographic region.

With the exception of rural Northwest and rural West where there were more left-handed girls than boys, the boys had a higher incidence of left-handedness than girls. 10.9% of all subjects used their left hand which included 12.3% of the boys and 9.5% of the girls.

b. Analysis by age.

Only the sex of the subjects was significant with left-handedness being more prevalent among the boys than the girls in practically all cases when analyzed by age group.

Variable 6 Incidence of use of run-on sentences

a. Analysis by grade

The incidence of the use of run-on sentences showed significant variation in terms of the main effects of grade, sex, residence, and geographic region at the one percent (1%) level.

Fifth graders had the highest incidence (62.3%), followed by fourth (59.6%) and sixth graders (59.8%).

Significantly more boys (62.5%) than girls (58.4%) used run-on sentences.

The order for magnitude for residence classification was suburban (62.2%), urban (60.3%), rural (58.9%) in declining order.

Geographically, the order of use was from highest to lowest: West (67.1%), North Central (62.7%), South (57.7%), and Northeast (54.4%).

All differences were significant at the one percent level.

b. Analysis by age

When the data were analyzed by age group, all main effects were found to be significant. The use of run-on sentences by age showed an irregular pattern.

Variable 7. Incidence of use of sentence fragments

a. Analysis by grade.

The total number of subjects using sentence fragments (18.2%) was significant in terms of three of the four main effects: grade, sex, and geographic region (residence classification excluded).

The incidence of use of sentence fragments was highest in grade four (19.5%), followed by grade 6 (18.4%), then grade five (16.7%).

b. Analysis by age.

The incidence of use of sentence fragments was 19.1% for all subjects when analyzed by age groups. Two of the four main effects (sex and geographic region) were significant at the one percent level when analyzed by age group.

Girls used significantly more sentence fragments than boys.

Variable 8 Total number of sentences

a. Analysis by grade.

All main effects for the total number of sentences written by subjects were significant at the one percent level. A steady increase is evident from grades four through six.

Boys wrote significantly fewer sentences than girls.

b. Analysis by age.

When analyzed by age groups, all main effects were significant at the one percent level. The mean total of sentences used rose with each age group, one to four. However, group six used fewer sentences than group five, although more than group four.

Boys averaged significantly fewer sentences than girls.

Variable 9 Total number of sample sentences

a. Analysis by grade.

None of the sources of variation in the total number of sample sentences was significant. This was the result of the arbitrary selection of an equal number (200) of sample sentences from each cell.

b. Analysis by age.

When analyzed by age, the main effect of age was significant at the one percent level.

Variable 10. Total number of words in sample sentences.

a. Analysis by grade.

The total number of words used by subjects was significant at the one percent level for the main effects: grade, sex, and residence. Geographic region was not significant.

There was a steady increase in the number of words used from grades four through six.

Boys used significantly more words than girls.

b. Analysis by age.

Three of the four main effects were significant when analyzed by age. Age and residence were significant at the one percent level and geographic region at the five percent level.

From age groups one through five there was a steady increase in total number of words used. Group six used less than group five.

Variable 11 Total number of nouns in sample sentences

a. Analysis by grade.

The four main effects were significant at the one percent level when the total number of nouns was analyzed by grade.

Each grade from four through six showed an increase in the number of nouns written.

Boys used significantly more nouns than girls.

The rank order of residence classifications was: urban, suburban, rural; and of the geographic regions, Northeast, South, West, and North Central.

b. Analysis by age.

Residence classification was significant at the 5% level and the other main effects were significant at the one percent level.

Variable 12 Total number of verbs used in sample sentences

a. Analysis by grade.

Only the main effects of grade and residence were significant when this variable was analyzed by grade.

The results show a steady increase in the number of verbs used from grade four through grade six.

b. Analysis by age.

Three (age, sex, residence) of the four main effects were significant at the one percent level.

With the exception of age group number six where there was a sharp decline in the number of verbs used, their use increased with each age group.

Girls used significantly more verbs than boys.

Variable 13 Total number of nouns in sample sentences

a. Analysis by grade.

In this analysis, only the grade level had a significant effect on the results. All differences between grades were significant at the one percent level.

The number of pronouns used increased with each grade level.

b. Analysis by age.

Only the main effects of age (1%) and sex (5%) produced significant effects.

Variable 14 Adjectives

a. Analysis by grade.

Three of the main effects (grade, sex, geographic region) were significant at the one percent level while the fourth (residence) was significant at the five percent level.

The total number of adjectives used increased with the grade level.

Boys used significantly more adjectives than girls.

b. Analysis by age.

The main effects of age and sex were significant at the one percent level.

The mean number of adjectives used increased with each age group from one through five, but decreased in group six.

Variable 15 Adverbs

a. Analysis by grade.

All four main effects were significant at the one percent level when total number of adverbs were analyzed by grade.

The mean number of adverbs used increased directly with grade level.

Girls used significantly more adverbs than boys.

b. Analysis by age.

Age, sex, and residence were significant as main effects at the one percent level.

The means for the age groups increased through group five, and decreased for group six.

Girls used significantly more adverbs than boys.

Variable 16 Prepositions

a. Analysis by grade.

The means were significant at the one percent level in terms of the main effects of grade, sex, and geographic region.

The total number of prepositions used increased directly with grade level.

Boys used significantly more prepositions than girls.

b. Analysis by age.

The use of prepositions was significant at the one percent level in terms of age, sex, and geographic region.

The number of prepositions used increased with each age group from one through six.

Variable 17 Conjunctions

a. Analysis by grade.

When analyzed by grade the main effects of grade, sex, and geographic region was significant at the one percent level.

The mean number of conjunctions increased with each grade.

Boys used significantly more conjunctions than girls.

b. Analysis by age.

Only age and geographic means were significant main effects.

The means increased from group one to group three, decreased in group four, and increased again in groups five and six.

Variable 18 Interjections

a. Analysis by grade.

The variations among the group means for the number of interjections were significant at the one percent level for the main effects of sex and geographic region, and at the five percent level for residence classification..

Girls used significantly more interjections than boys.

b. Analysis by age.

The main effects (sex and geographic region) were significant at the one percent level, and residence at the five percent level.

Variable 19 Declarative sentences

a. Analysis by grade.

When analyzed by grade the number of declarative sample sentences was significant for only one main effect, sex.

Boys used more declarative sentences than girls.

b. Analysis by age.

The analysis by age produced one percent significance for age groups and five percent significance for one main effect, sex.

Boys used more declarative sentences than girls.

Variable 20 Interrogative sentences

a. Analysis by grade.

Grade level was not a significant main effect, but sex and geographic region were at the one percent level.

b. Analysis by age.

When the mean number of interrogative sample sentences were analyzed by age group, only the main effects of sex and geographic region were significant both at the one percent level.

Girls used significantly more interrogative sentences than boys.

Variable 21 Exclamatory sentences

a. Analysis by grade.

The main effect of grade was significant at the five percent level and sex and residence classification were significant at the one percent level.

Means showed a steady increase from grade four, to grade five, to grade six.

Girls used significantly more exclamatory sentences than boys.

b. Analysis by age.

The main effects of sex and residence were significant at the one percent level, and geographic region significant at the five percent level.

Girls used significantly more exclamatory sentences than boys.

Variable 22 Imperative sentences

a. Analysis by grade.

The main effects of grade and sex were significant at the one percent level.

The use of imperative sentences increased from grade four to five, but decreased for grade six.

Girls used significantly more imperative sentences than boys.

b. Analysis by age.

Only the main effect of sex produced differences significant at the one percent level.

Girls used significantly more imperative sentences than boys.

Variable 23 Simple sentences

a. Analysis by grade.

The usage was significant at the one percent level in terms of main effects of grade and sex.

The mean number of simple sentences decreased from grade four, to five, to six.

b. Analysis by age.

The usage was significant at the one percent level in terms of main effects of age and sex.

The means for age groups showed an irregular pattern of usage.

Variable 24 Compound sentences

a. Analysis by grade.

All four main effects were significant at the one percent level.

The use of compound sentences increased from grades four to five, but decreased for grade six.

Girls used significantly more compound sentences than boys.

b. Analysis by age.

The main effects of sex, residence, and geographic region were significant at the one percent level.

Girls wrote significantly more compound sentences than boys.

Variable 25 Complex sentences

a. Analysis by grade.

The use of complex sentences was significant in terms of main effects of grade (1%), sex (5%), residence classification (1%) and geographic region (1%).

Fourth and fifth grade students wrote the same mean number of complex sentences. The sixth grade mean was significantly different from the mean for grades five and four.

b. Analysis by age.

Only geographic region emerged as a significant main effect at the one percent level.

Variable 26 Compound-complex sentences

a. Analysis by grade.

The one percent level of significance was obtained in terms of grade and residence classification.

The means increased from grades four, to five, to six.

b. Analysis by age.

Residence classification was significant at the one percent level.

Variable 27 Dependent clauses

a. Analysis by grade.

The analysis resulted in a significance at the one percent level for grade, sex, and geographic region.

The mean use increased from grade four to five to grade six.

Girls used significantly more dependent clauses than did boys.

b. Analysis by age.

The main effects of age, sex, and geographic region were significant at the one percent level.

The means by age groups increased from group to group except from 1 to 2 and from 5 to 6.

Girls used significantly more dependent clauses than did the boys.

Variable 28 Independent clauses

a. Analysis by grade.

The use of independent clauses was significant in terms of all main effects at the one percent level.

The means increased from grade four to six.

Girls used significantly more independent clauses than did boys.

b. Analysis by age.

All main effects were significant at the one percent level.

The pattern of use of independent clauses by the established age groups was irregular.

Variable 29 Noun Phrases

a. Analysis by grade.

All main effects and all interactions were significant at the one percent (1%) level.

The mean total number of noun phrases increased from grade four to grade five, but decreased in grade six. (.300, .433, .420)

The differences between grades four and five, and between grades four and six were significant at the one percent (1%) level.

Girls used significantly more noun phrases than boys.

The differences between the South and West, South and North Central, and Northeast and North Central were significant at the one percent (1%) level; that between the West and North Central was significant at the five percent (5%) level.

Rural subjects used significantly more (1% level) noun phrases than did suburban or urban subjects.

b. Analysis by age.

All main effects were significant at the one percent (1%) level.

The use of noun phrases increased from age groups 1 through 5 and decreased slightly in age group 6. The differences

between group 1 and group 5, group 1 and group 6, and between group 2 and group 5 were significant at the one percent (1%) level. The differences between groups 1 and 3 and between groups 1 and 4 were significant at the five percent (5%) level.

Girls used significantly more noun phrases than did boys.

Rural subjects wrote significantly more noun phrases than did suburban and urban subjects.

The Northeast mean was significantly different from all other regions at the one percent (1%) level, but the other regions were not significantly different from each other.

Variable 30 Verb Phrases

a. Analysis by grade.

When analyzed by grade, the mean number of verb phrases used by subjects was 1.512. This was significant at the one percent (1%) level in terms of grade, residence, and region.

The use of verb phrases increased from grades four to six. The difference between grades four and five was significant at the one percent (1%) level while the differences

between grades four and six and grades five and six were significant at the one percent (1%) level.

Urban subjects used the greatest mean number of verb phrases, followed by suburban and rural subjects. All differences among the residence classifications were significant at the one percent (1%) level.

The Western regional group was significantly lower at the one percent (1%) level than the means of the other geographic regions. The difference between South and North Central was also significant at the one percent (1%) level, and that between Northeast and North Central at the five percent (5%) level.

b. Analysis by age.

The mean number of verb phrases used by all subjects was 1.474. This was significant at the one percent (1%) level in terms of the three main effects: age, residence, and region. Sex was not significant as a main effect.

Means by age groups showed a decline from group 1 to group 2; increases from group 2 through group five, and another decline in group 6. The differences between means for group 2 and 5, and group 2 and 6 were significant at the five percent (5%) level.

The same differences for regions were significant in the age analysis as in the grade analysis.

Urban students used the greatest mean number of verb phrases followed by suburban and rural classifications. Means for rural group were significantly different from the suburban and rural group at the one percent (1%) level. Suburban and rural means were significant at the five percent (5%) level.

Variable 31. Adverbial phrases

a. Analysis by grade.

The grade analysis of verb phrases used showed a mean of 1.845 for all subjects. This was significant at the one percent (1%) level in terms of all main effects (grade, sex, residence, region.)

The mean number of adverbial phrases used increased from grade four to five to grade six. The differences between grades four and six and grades five and six were significant at the one percent (1%) level.

Boys used significantly more adverbial phrases than did girls.

Suburban subjects had the highest mean number of adverbial phrases, followed by urban and rural. Differences between all pairs of residence classification groups were significant at the one percent (1%) level.

The means for geographic regions in descending order were 1.980 (West), 1.818 (North Central), 1.871 (Northeast), and 1.711 (South). All differences between regions were significant at the one percent (1%) level except that between the Northeast and North Central.

b. Analysis by age.

The age analysis of the use of adverbial phrases produced a mean of 1.788 for all subjects. All main effects were significant at the one percent (1%) level.

Means for the age groups increased from group one through group 3, decreased in group 4, and increased in groups 5 and 6. Mean differences between groups 1 and 5, groups 1 and 6, and groups 5 and 6 were significant at the one percent (1%) level. Differences between groups 2 and 6 and groups 3 and 6 were significant at the five percent (5%) level.

The rank order for residence was suburban, urban, and rural. The mean for rural group was significantly different

from the means of suburban and urban classifications at the one percent (1%) level.

Rank order means of 1.952, 1.823, 1.750, and 1.589 were recorded for West, South, North Central, and Northeast. Differences between West and Northeast, West and North Central, and South and Northeast were significant at the one percent (1%) level, while that between the Northeast and North Central was significant at the five percent (5%) level.

Girls used significantly more adverbial phrases than did boys.

Variable 32 Adjectival phrases

a. Analysis by grade.

The grade analysis of adjectival phrases used showed a mean of .798 for all subjects. Only grade and residence effects were significant at the one percent (1%) level. The means increased from grade four to five to six and were .680, .792, and .922 at the one percent (1%) level.

Rural subjects had the highest mean, followed by urban and suburban (.855, .795, .745). The difference between suburban and rural was significant at the one percent (1%) level and that between urban and rural at the five percent (5%) level. No significant difference was found between suburban and urban areas.

Three different rank orders existed in the residence classification. Practically no variation occurred in the North Central Region where the means were .770, .762, and .754 for suburban, urban and rural groups, respectively. The South produced the highest and lowest means of all groups tested, as follows: suburban - .712; urban - .777; and rural - .964. Suburban, urban, and rural means for the West and Northeast were .735, .832, .821, and .762, .807, .881, respectively.

Boys used more adjectival phrases in suburban and urban areas, but less in rural areas.

b. Analysis by age.

The age analysis resulted in a mean of .766 adjectival phrases for all subjects. Age, residence and region were significant main effects at the one percent (1%) level.

The mean usage increased from age group 1 through age group 6.

Differences in means significant at the one percent (1%) level were:

> Group 1 and 5; group 1 and 6; group 2 and 5; and Group 2 and 6.

Differences in means significant at the five percent (5%) level were:

> Group 3 and 6; group 4 and 6.

The residence rank order of means was rural, urban, and suburban. The differences between suburban and urban was significant at the five percent (5%) level; between suburban and rural at the one percent (1%) level.

Means for West, Northeast, South, and North Central were .806, .806, .755, and .698, respectively. The analysis of variance designated a significance of difference at the one percent (1%) level.

Variable 33 Absolute Phrases

a. Analysis by grade.

A mean of .007 absolute phrases were obtained for all subjects when using the grade analysis. All main effects were significant at the one percent (1%) level.

The increasing order of absolute phrases by grades were four, six, and five. The mean in grade four was significantly different from the means in grades five and six at the one percent (1%) level.

Boys used significantly more absolute phrases than did girls at the one percent (1%) level.

Rank order of use of absolute phrases by rural classification was: rural (.012), suburban (.008), and urban (.002).

The differences between suburban and rural, between urban and rural classifications were significant at the one percent (1%) level.

Means by regions were West (.018), North Central (.005), South (.004), and Northeast (.003). The Western mean was significantly higher (one percent (1%) level) than the means in the other three regions.

b. Analysis by age.

The mean number of absolute phrases used for all subjects was .008. The main effects of sex, residence, and region were significant at the one percent (1%) level.

Boys used significantly more absolute phrases than did girls.

Rural subjects used highest mean incidence of use (.008), then urban (.005), and suburban (.000). The difference between means for rural and urban groups was significant at the one percent (1%) level.

The means by geographic regions were: Western (.024), Northeast (.003), North Central (.003), and the South (.001). The Western mean was significantly different from the other three means.